ELECTRICAL COMMUNICATION

INDEX TO

VOLUME 31

1954

Published Quarterly and Copyrighted by the
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION
67 BROAD STREET, NEW YORK 4, NEW YORK, U.S.A.

SUBJECT INDEX

	Number	Page
Aeronautical Radio:		
Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197
Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
Ultra-High Frequency Omnidirectional Antenna Systems for Large Aircraft. W. Sichak and J. J. Nail	3	202–213
Amplification (See also Vacuum Tubes):		
Bidirectional: United States Patents Issued to International Telephone and Telegraph System.	3	220–221
Electric Servomechanisms. G. J. Lehmann	4	249–256
Solid-State Image Intensifier. R. K. Orthuber and L. R. Ullery	3	198–201
Antennas:		
Microstrip: United States Patents Issued to International Telephone and Telegraph System.	1	67–69
Ultra-High-Frequency Omnidirectional Antenna Systems for Large Aircraft. W. Sichak and J. J. Nail	3	202–213
United States Patents Issued to International Telephone and Telegraph System	4	293–295
Approach System, Fixed-Beam Aircraft. R. A. Hampshire	3	189–197
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines. J. H. Bryant and E. J. White	4	278–282
Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted. R. M. Fortet	4	283–287
Bandwidth:		
Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted. R. M. Fortet	4	283–287
Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter. M. Dishal	4	257–277
Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
Biographical (See Also In Memoriam): Etching of H. A. Lorentz	3	201
Book Notices:		
Techniques de L'Ingénieur	3	166
Thermionic Valves, Their Theory and Design	3	219
Cathode-Ray Tubes: United States Patents Issued to International Telephone and Telegraph System	3	220–221
Cells: United States Patents Issued to International Telephone and Telegraph System	2	151–152
Central-Office Equipment:		
Contact Bank for Two-Motion-Selector Switch (Frontispiece)	4	226
Crossbar Automatic Telephone Switching (Frontispiece)	2	74
Electronic Generator for Operating Telephone Ringers. G. H. Brodie	1	27–31
Mechanoelectronic Telephone Switching System. J. Kruithof and M. den Hertog	2	107–150
Pentaconta Dial Telephone Switching System. F. P. Gohorel	2	75–106
Production of Two-Motion-Selector Contacts	4	227–229
Training Course on Crossbar Equipment. T. DeW. Talmage	3	167–171
Type-7 Crossbar Selector. R. W. Hutton	1	32–37
United States Patents Issued to International Telephone and Telegraph System	3	220–221
Coaxial Cables:		
Modern Coaxial-Cable Technique in Great Britain (Correction for Volume 30, Pages 186–216; September, 1953). E. Baguley	2	152
United States Patents Issued to International Telephone and Telegraph System	1	67–69
United States Patents Issued to International Telephone and Telegraph System	4	293–295
Coil Winding: United States Patents Issued to International Telephone and Telegraph System.	4	293–295
Color Television: United States Patents Issued to International Telephone and Telegraph System.	1	67–69
Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter. M. Dishal	4	257–277
Crossbar Equipment: See Central Office Equipment.		
Delay Device: United States Patents Issued to International Telephone and Telegraph System.	1	67–69
Delay Lines: Radar Receiver with Elimination of Fixed-Target Echoes. H. Tanter	4	235–248
Detection: Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Diagrams, Graphical Symbols for Electrical. H. P. Westman	4	230–234
Diodes: Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp.	3	215–219
Distance Measuring: Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
Doppler Effect: Radar Receiver with Elimination of Fixed-Target Echoes. H. Tanter	4	235–248
Drafting Practice: Graphical Symbols for Electrical Diagrams. H. P. Westman	4	230–234
Dual-Beam Localizer: Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197

	Number	Pages
Electric Servomechanisms. G. J. Lehmann	4	249–256
Electroluminescence: Solid-State Image Intensifier. R. K. Orthuber and L. R. Ullery	3	198–201
Electron Beams: United States Patents Issued to International Telephone and Telegraph System.	3	220–221
Electronic Generator for Operating Telephone Ringers. G. H. Brodie	1	27–31
Electronic Switching: Mechanoelectronic Telephone Switching. J. Kruithof and M. den Hertog	2	107–150
Etching of H. A. Lorentz	3	201
Filter Networks: Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter. M. Dishal	4	257–277
Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197
Generator for Operating Telephone Ringers, Electronic. G. H. Brodie	1	27–31
Germanium Crystals, Temperature Regulator Used in Producing. G. J. Lehmann and C. A. Meuleau	1	19–26
Glide Slope: Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197
Graphical Symbols for Electrical Diagrams. H. P. Westman	4	230–234
Helical Lines:		
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines. J. H. Bryant and E. J. White	4	278–282
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
Image Intensifier, Solid-State. R. K. Orthuber and L. R. Ullery	3	198–201
Impedance:		
Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter. M. Dishal	4	257–277
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
New High-Frequency Proximity-Effect Formula. A. C. Sim	1	63–66
Information Theory: Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted. R. M. Fortet	4	283–287
In Memoriam—		
Henry Conrad Roemer	1	70
Jean E. F. Roussel	4	296
Insertion Loss of a Waveguide Junction, Determination of Reflection Coefficients and. G. A. Deschamps	1	57–62
Instrument Landing Systems: Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197
Light Amplifier: Solid-State Image Intensifier. R. K. Orthuber and L. R. Ullery	3	198–201
Localizer: Fixed-Beam Aircraft Approach System. R. A. Hampshire	3	189–197
Lorentz, H. A., Etching of	3	201
Loss of a Waveguide Junction, Determination of Reflection Coefficients and Insertion. G. A. Deschamps	1	57–62
Machine Switching: See Central Office Equipment.		
Mackay Radio and Telegraph Company, Palo Alto, California, Station of (Frontispiece)	2	154
Magnetrons: Manufacture of a Magnetron	1	2–18
Maintenance: Training Course on Crossbar Equipment. T. DeW. Talmage	3	167–171
Manufacture:		
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Manufacture of a Magnetron	1	3–18
Production of Two-Motion-Selector Contacts	4	226–229
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Marine: Palo Alto, California, Station of Mackay Radio and Telegraph Company (Frontispiece)	2	154
Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
Mechanoelectronic Telephone Switching System. J. Kruithof and M. den Hertog	2	107–150
Microphonics:		
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Microstrip:		
Microstrip Kit	3	214
United States Patents Issued to International Telephone and Telegraph System	1	67–69
Microwaves:		
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
Manufacture of a Magnetron	1	2–18
Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
Modern Coaxial-Cable Technique in Great Britain (Correction for Volume 30, Pages 186–216; September, 1953). E. Baguley	2	152
Motors: Electric Servomechanisms. G. J. Lehmann	4	249–256
Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
Navigation: See Aeronautical Radio.		

	Number	Pages
Negative Feedback: United States Patents Issued to International Telephone and Telegraph System	1	67–69
New Chart for the Solution of Transmission-Line and Polarization Problems (Addendum to Volume 30, Pages 247–254; September, 1954). G. A. Deschamps	3	188
New High-Frequency Proximity-Effect Formula. A. C. Sim	1	63–66
Noise:		
Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted. R. M. Fortet	4	283–287
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Obituary: See In Memoriam.		
Palo Alto, California, Station of Mackay Radio and Telegraph Company (Frontispiece)	2	154
Patents: See United States Patents.		
Pentaconta Dial Telephone Switching System. F. P. Gohorel	2	74–106
Photoconductors: Solid-State Image Intensifier. R. K. Orthuber and L. R. Ullery	3	198–201
Pneumatic Carriers: United States Patents Issued to International Telephone and Telegraph System	2	151–152
Polarization: New Chart for the Solution of Transmission-Line and Polarization Problems (Addendum to Volume 30, Pages 247–254; September, 1954). G. A. Deschamps	3	188
Preventive Maintenance: Training Course on Crossbar Equipment. T. DeW. Talmage	3	167–171
Production (See Also Manufacture): Production of Two-Motion-Selector Contacts	4	227–229
Projective Chart:		
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
New Chart for the Solution of Transmission-Line and Polarization Problems (Addendum to Volume 30, Pages 247–254; September, 1953). G. A. Deschamps	3	188
Propagation of Waves:		
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines. J. H. Bryant and E. J. White	4	278–282
New High-Frequency Proximity-Effect Formula. A. C. Sim	1	63–66
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
Ultra-High-Frequency Omnidirectional Antenna Systems for Large Aircraft. W. Sichak and J. J. Nail	3	202–213
Proximity-Effect Formula, New High-Frequency. A. C. Sim	1	63–66
Pulse Systems:		
Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted. R. M. Fortet	4	283–287
Navaglobe–Navarho Long-Range Radio Navigational System. C. T. Clark, R. I. Colin, M. Dishal, I. Gordy, and M. Rogoff	3	155–166
United States Patents Issued to International Telephone and Telegraph System	3	220–221
Quality Control:		
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Radar:		
Manufacture of a Magnetron	1	2–18
Radar Receiver with Elimination of Fixed-Target Echoes. H. Tanter	4	235–248
Rectification:		
Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
United States Patents Issued to International Telephone and Telegraph System	1	67–69
United States Patents Issued to International Telephone and Telegraph System	2	151–152
Reflection Coefficients and Insertion Loss of a Waveguide Junction, Determination of. G. A. Deschamps	1	57–62
Refractory: United States Patents Issued to International Telephone and Telegraph System	4	293–295
Reliable Tubes: See Trustworthy Valves.		
Ringers, Electronic Generator for Operating Telephone. G. H. Brodie	1	27–31
Roemer, Henry Conrad, In Memoriam—	1	70
Rotary Amplifiers: Electric Servomechanisms. G. J. Lehmann	4	249–256
Roussel, Jean E. F., In Memoriam—	4	296
Selective Circuits: Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter. M. Dishal	4	257–277
Semiconductors:		
Temperature Regulator Used in Producing Germanium Crystals. G. J. Lehmann and C. A. Meuleau	1	19–26
United States Patents Issued to International Telephone and Telegraph System	1	67–69
Servomechanisms:		
Electric Servomechanisms. G. J. Lehmann	4	249–256
Temperature Regulator Used in Producing Germanium Crystals. G. J. Lehmann and C. A. Meuleau	1	19–26

	Number	Pages
Solid-State Image Intensifier. R. K. Orthuber and L. R. Ullery	3	198–201
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
Space Charge: Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted, Average. R. M. Fortet	4	283–287
Standardization: Graphical Symbols for Electrical Diagrams. H. P. Westman	4	230–234
Statistics of the World, Telephone	4	288–292
Symbols for Electrical Diagrams, Graphical. H. P. Westman	4	230–234
Techniques de L'Ingénieur (Book)	3	166
Telephone Statistics of the World	4	288–292
Teleprinters: United States Patents Issued to International Telephone and Telegraph System.	3	220–221
Television:		
United States Patents Issued to International Telephone and Telegraph System	1	67–69
United States Patents Issued to International Telephone and Telegraph System	2	151–152
Temperature Regulator Used in Producing Germanium Crystals. G. J. Lehmann and C. A. Meuleau	1	19–26
Terminal, Electrical: United States Patents Issued to International Telephone and Telegraph System	4	293–295
Testing:		
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Manufacture of a Magnetron	1	2–18
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Thermionic Valves, Their Theory and Design (Book)	3	219
Timing Relay: United States Patents Issued to International Telephone and Telegraph System.	4	293–295
Toroidal Coils: United States Patents Issued to International Telephone and Telegraph System.	4	293–295
Training Course on Crossbar Equipment. T. DeW. Talmage	3	167–171
Transistors: United States Patents Issued to International Telephone and Telegraph System	4	293–295
Transmission Lines:		
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
Microstrip Kit	3	214
New Chart for the Solution of Transmission-Line and Polarization Problems (Addendum to Volume 30, Pages 247–254; September, 1953). G. A. Deschamps	3	188
New High-Frequency Proximity-Effect Formula. A. C. Sim	1	63–66
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
United States Patents Issued to International Telephone and Telegraph System	1	67–69
Traveling-Wave Tubes:		
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines. J. H. Bryant and E. J. White	4	278–282
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
United States Patents Issued to International Telephone and Telegraph System	1	67–69
Trustworthy Valves:		
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Two-Motion Selector: Production of Two-Motion-Selector Contacts	4	226–229
Type-7 Crossbar Selector. R. W. Hutton	1	32–37
Ultra-High-Frequency Omnidirectional Antenna Systems for Large Aircraft. W. Sichak and J. J. Nail	3	202–213
United States Patents Issued to International Telephone and Telegraph System:		
August–October, 1953	1	67–69
November, 1953–January, 1954	2	151–152
February–April, 1954	3	220–221
May–July, 1954	4	293–295
Vacuum Tubes:		
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines. J. H. Bryant and E. J. White	4	278–282
Developments in Trustworthy-Valve Techniques. E. G. Rowe and P. Welch	3	172–188
Manufacture of a Magnetron	1	2–18
Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies. G. Papp	3	215–219
Some Wave Properties of Helical Conductors. J. H. Bryant	1	50–56
Thermionic Valves, Their Theory and Design (Book)	3	219
United States Patents Issued to International Telephone and Telegraph System	1	67–69
United States Patents Issued to International Telephone and Telegraph System	2	151–152
United States Patents Issued to International Telephone and Telegraph System	3	220–221
Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Valves (See Also Vacuum Tubes): Valve Noise Produced by Electrode Movement. P. A. Handley and P. Welch	1	38–49
Waveguide: Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction. G. A. Deschamps	1	57–62
Wave Properties of Helical Conductors, Some. J. H. Bryant	1	50–56
Wide-Frequency-Range Tuned Helical Antennas and Circuits (Correction for Volume 29, Pages 294–299; December, 1953). A. G. Kandoian and W. Sichak	1	49

AUTHOR INDEX

	Number	Pages
Baguley, E. Modern Coaxial-Cable Technique in Great Britain (Correction for Volume 30, pages 186–216; September, 1953)	2	152
Brodie, G. H. Electronic Generator for Operating Telephone Ringers	1	27–31
Bryant, J. H.		
Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines	4	278–282
Some Wave Properties of Helical Conductors	1	50–56
Clark, C. T. Navaglobe–Navarho Long-Range Radio Navigational System	3	155–166
Colin, R. I. Navaglobe–Navarho Long-Range Radio Navigational System	3	155–166
den Hertog, M. Mechanoelectronic Telephone Switching System	2	107–150
Deschamps, G. A.		
Determination of Reflection Coefficients and Insertion Loss of a Waveguide Junction	1	57–62
New Chart for the Solution of Transmission-Line and Polarization Problems (Addendum to Volume 30, Pages 247–254; September, 1953)	3	188
Dishal, M.		
Concerning the Minimum Number of Resonators and the Minimum Unloaded-Resonator Q Needed in a Filter	4	257–277
Navaglobe–Navarho Long-Range Radio Navigational System	3	155–166
Fortet, R. M. Average Spectrum of a Periodic Series of Identical Pulses Randomly Displaced and Distorted	4	283–287
Gohorel, F. P. Pentaconta Dial Telephone Switching System	2	75–106
Gordy, I. Navaglobe–Navarho Long-Range Radio Navigational System	3	155–166
Hampshire, R. A. Fixed-Beam Aircraft Approach System	3	189–197
Handley, P. A. Valve Noise Produced by Electrode Movement	1	38–49
Hutton, R. W. Type-7 Crossbar Selector	1	32–37
Kandoian, A. G. Wide-Frequency-Range Tuned Helical Antennas and Circuits (Correction for Volume 29, pages 294–299; December, 1953)	1	49
Kruithof, J. Mechanoelectronic Telephone Switching System	2	107–150
Lehmann, G. J.		
Electric Servomechanisms	4	249–256
Temperature Regulator Used in Producing Germanium Crystals	1	19–26
McLean, C. A. Temperature Regulator Used in Producing Germanium Crystals	1	19–26
Nail, J. J. Ultra-High-Frequency Omnidirectional Antenna Systems for Large Aircraft	3	202–213
Orthuber, R. K. Solid-State Image Intensifier	3	198–201
Papp, G. Mechanism of Rectification in Vacuum-Tube Diodes at Microwave Frequencies	3	215–219
Rogoff, M. Navaglobe–Navarho Long-Range Radio Navigational System	3	155–166
Rowe, E. G. Developments in Trustworthy-Valve Techniques	3	172–188
Sichak, W.		
Ultra-High-Frequency Omnidirectional Antenna Systems for Large Aircraft	3	202–213
Wide-Frequency-Range Tuned Helical Antennas and Circuits (Correction for Volume 29, pages 294–299; December, 1953)	1	49
Sim, A. C. New High-Frequency Proximity-Effect Formula	1	63–66
Talmage, T. DeW. Training Course on Crossbar Equipment	3	167–171
Tanter, H. Radar Receiver with Elimination of Fixed-Target Echoes	4	235–248
Ullery, L. R. Solid-State Image Intensifier	3	198–201
Welch, P.		
Developments in Trustworthy-Valve Techniques	3	172–188
Valve Noise Produced by Electrode Movement	1	38–49
Westman, H. P. Graphical Symbols for Electrical Diagrams	4	230–234
White, E. J. Attenuation and Power-Handling Capability of Helical Radio-Frequency Lines	4	278–282